

**Amendments to the Claims:** This listing of claims will replace all prior versions, and listings, of claims in the application

**Listing of Claims:**

1. - 8. (Cancelled)

9. (Previously Presented) An emission control system for treating exhaust gas comprising NO<sub>x</sub>, hydrocarbons, and carbon monoxide produced by a lean burn engine, wherein the exhaust gas which flows upstream to downstream through the emission control system, which system comprising:

- (a) a lean NO<sub>x</sub> catalyst system comprising a lean NO<sub>x</sub> catalyst platinum group metal (PGM) for reducing NO<sub>x</sub> to N<sub>2</sub> wherein the lean NO<sub>x</sub> catalyst PGM consists of platinum;
- (b) an oxidation catalyst system comprising an oxidation catalyst platinum group metal (PGM) for oxidizing hydrocarbons and carbon monoxide; and
- (c) means for injecting hydrocarbon fuel into the exhaust upstream of the lean NO<sub>x</sub> catalyst system,

wherein the lean NO<sub>x</sub> catalyst system is disposed upstream of the oxidation catalyst system and wherein the platinum is present in the lean NO<sub>x</sub> catalyst system at a loading of < 30g/ft<sup>3</sup> and wherein the volume of the lean NO<sub>x</sub> catalyst system is 300% or greater than that of the volume of the oxidation catalyst system.

10. (Previously Presented) An emission control system according to claim 9, wherein the lean NO<sub>x</sub> catalyst system has an activity sufficient to provide a ratio of % NO<sub>x</sub> conversion to % hydrocarbon conversion of at least 0.2 as measured at a temperature of 230°C, a space velocity of 25000hr<sup>-1</sup> and a hydrocarbon:NO<sub>x</sub> input ratio of 3:1 counting the hydrocarbon as equivalent propane.

11. (Previously Presented) An emission control system according to claim 9, wherein the oxidation catalyst system has an activity sufficient to provide a % hydrocarbon conversion of greater than 80% and a % carbon monoxide conversion of greater than 70% as measured at a temperature of 230°C, a space velocity of 25000hr<sup>-1</sup> and a hydrocarbon:NO<sub>x</sub> input ratio of 3:1 counting the hydrocarbon as equivalent propane.

12. (Previously Presented) An emission control system according to claim 9, wherein the lean NO<sub>x</sub> catalyst system further comprises an alkaline earth metal.
13. (Cancelled)
14. (Previously Presented) An emission control system according to claim 9, wherein the oxidation catalyst system PGM is platinum.
15. (Previously Presented) An emission control system according to claim 9, wherein the oxidation catalyst system PGM loading is about 100g/ft<sup>3</sup>.
16. (Previously Presented) An emission control system according to claim 9, wherein the oxidation catalyst system or the lean NO<sub>x</sub> catalyst system further comprise alumina, a zeolite, ceria or zirconia.
17. (Cancelled)
18. (Previously Presented) An emission control system according to claim 9, wherein the lean NO<sub>x</sub> catalyst system is coated on two catalyst substrates arranged in parallel.
19. (Cancelled)
20. (Cancelled)
21. (Previously Presented) A process for the control of emissions from a lean-burn internal combustion engine, which process comprising:
  - passing exhaust gases from the engine over a lean NO<sub>x</sub> catalyst system comprising a lean NO<sub>x</sub> platinum group metal (PGM) to reduce NO<sub>x</sub> to N<sub>2</sub> wherein the lean NO<sub>x</sub> catalyst PGM consists of platinum;
  - passing the product gases exiting from the lean NO<sub>x</sub> catalyst system over an oxidation catalyst system comprising an oxidation catalyst platinum group metal (PGM) to oxidize hydrocarbons and carbon monoxide; and
  - introducing additional hydrocarbon fuel into the exhaust gas before the exhaust gas contacts the lean NO<sub>x</sub> catalyst system,

wherein the platinum is present in the lean NOx catalyst at a loading of  $< 30\text{g/ft}^3$  and wherein the volume of the lean NOx catalyst system is 300% or greater than that of the volume of the oxidation catalyst system.

22. (Previously Presented) A process according to claim 21, wherein the lean NOx catalyst system has an activity sufficient to provide a ratio of % NOx conversion to % hydrocarbon conversion of at least 0.2 as measured at a temperature of  $230^\circ\text{C}$ , a space velocity of  $25000\text{hr}^{-1}$  and a hydrocarbon:NOx input ratio of 3:1 counting the hydrocarbon as equivalent propane.

23. (Previously Presented) A process according to claim 21, wherein the oxidation catalyst system has an activity sufficient to provide a % hydrocarbon conversion of greater than 80% and a % carbon monoxide conversion of greater than 70% as measured at a temperature of  $230^\circ\text{C}$ , a space velocity of  $25000\text{hr}^{-1}$  and a hydrocarbon:NOx input ratio of 3:1 counting the hydrocarbon as equivalent propane.

24. (Previously Presented) A process according to claim 21, wherein the lean NOx catalyst system further comprises an alkaline earth metal.

25. (Previously Presented) A process according to claim 21, wherein the oxidation catalyst system further comprises a base metal.

26. (Previously Presented) A process according to claim 21, wherein the oxidation catalyst system PGM is platinum.

27. (Previously Presented) A process according to claim 21, wherein the oxidation catalyst system PGM loading is about  $100\text{g/ft}^3$ .

28. (Previously Presented) A process according to claim 21, wherein the oxidation catalyst system or the lean NOx catalyst further comprises alumina, a zeolite, ceria or zirconia.

29. (Previously Presented) A process according to claim 21, wherein the exhaust gases are passed over the lean NOx catalyst at a space velocity below  $40000\text{hr}^{-1}$ .

30. (Previously Presented) A process according to claim 21, wherein the product gases are passed over the oxidation catalyst at a space velocity of  $40000\text{--}80000\text{hr}^{-1}$ .

31. (Cancelled)

32. (Previously Presented) A process according to claim 21, wherein the lean NO<sub>x</sub> catalyst system is coated on two catalyst substrates arranged in parallel.

33. (Cancelled)

34. (Previously Presented) A combination of a lean burn engine and an emission control system, wherein the lean burn engine produces an exhaust gas comprising NO<sub>x</sub>, hydrocarbons, and carbon monoxide and the emission control system treats the exhaust gas which flows upstream to downstream through the emission control system, said emission control system comprising:

- (a) a lean NO<sub>x</sub> catalyst system comprising a lean NO<sub>x</sub> catalyst platinum group metal (PGM) for reducing NO<sub>x</sub> to N<sub>2</sub> wherein the lean NO<sub>x</sub> catalyst PGM consists of platinum;
- (b) an oxidation catalyst system comprising an oxidation catalyst platinum group metal (PGM) for oxidizing hydrocarbons and carbon monoxide; and
- (c) means for injecting hydrocarbon fuel into the exhaust upstream of the lean NO<sub>x</sub> catalyst system,

wherein the lean NO<sub>x</sub> catalyst is disposed upstream of the oxidation catalyst and wherein the platinum is present in the lean NO<sub>x</sub> catalyst at a loading of < 30g/ft<sup>3</sup> and wherein the volume of the lean NO<sub>x</sub> catalyst system is 300% or greater than that of the volume of the oxidation catalyst system.

35. (Previously Presented) The combination of claim 34, wherein the engine is a diesel engine, a lean burn gasoline engine or a direct injection gasoline engine.

36. (New) An emission control system for treating exhaust gas comprising NO<sub>x</sub>, hydrocarbons, and carbon monoxide produced by a lean burn engine, wherein the exhaust gas which flows upstream to downstream through the emission control system, which system comprises of:

- (a) a lean NO<sub>x</sub> catalyst system consisting of a platinum catalyst having a loading of <30g/ft<sup>3</sup> coated on a surface area-enlarging washcoat, for reducing NO<sub>x</sub> to N<sub>2</sub>;

- (b) an oxidation catalyst system comprising an oxidation catalyst platinum group metal (PGM) for oxidizing hydrocarbons and carbon monoxide; and
- (c) means for injecting hydrocarbon fuel into the exhaust upstream of the lean NOx catalyst system,

wherein the lean NOx catalyst system is disposed upstream of the oxidation catalyst system and wherein the volume of the lean NOx catalyst system is 300% or greater than that of the volume of the oxidation catalyst system.

37. (New) A process for the control of emissions from a lean-burn internal combustion engine, which process comprises:

passing exhaust gases from the engine over a lean NOx catalyst system consisting of a platinum catalyst having a loading of  $<30\text{g/ft}^3$  coated on a surface area-enlarging washcoat, for reducing NOx to  $\text{N}_2$ ;

passing the product gases exiting from the lean NOx catalyst system over an oxidation catalyst system comprising an oxidation catalyst platinum group metal (PGM) to oxidize hydrocarbons and carbon monoxide; and

introducing additional hydrocarbon fuel into the exhaust gas before the exhaust gas contacts the lean NOx catalyst system,

wherein the volume of the lean NOx catalyst system is 300% or greater than that of the volume of the oxidation catalyst system.